

## **REMARKS**

Claims 1-3, 18, 21-23 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,920,390 to Farahi et al ("Farahi").

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Farahi.

Claims 5-17, 19, and 20 have been objected to as being dependent upon a rejected base claim.

Claims 1-23 remain pending.

### **Rejection of Claims 1-3, 18, and 21-23 under 35 U.S.C. § 102(e).**

With respect to independent claims 1, 18, and 21-23, the Office Action states that Farahi discloses all of the steps of Applicant's claimed invention.

Independent claim 1 has been amended to point out more clearly what Applicant regards as the invention. Support for the claim amendment can be found, at least, on page 12, lines 9-12, and page 15, lines 12-23 of the specification.

Specifically, Applicant's independent claim 1 now recites a method for collecting data for use in image reconstruction of a scattering target medium. The method includes providing a source for directing at least one wavelength of near infrared energy into a target medium, providing a detector for measuring diffusely scattered near infrared energy emerging from the target medium, and selecting at least one wavelength of near infrared energy, wherein at least one wavelength of near infrared energy is selected to maximize the total path length of near infrared energy propagating from the source to a detector and to maintain an acceptable energy density at the detector. The method further includes directing at least one selected wavelength of near infrared energy into the target medium, and measuring at least one wavelength of diffusely

scattered near infrared energy emerging from the target medium.

Farahi teaches performing an interferometric measurements wherein the wave properties of back reflected light are measured. Wave properties of light are only measurable over short distances and hence Farahi is performing near surface interrogation, not the method of the present invention as claimed. Further, Farahi explores tissue using wavelengths in the NIR wavelength range that are least attenuated.

In contrast, Applicant's invention does not involve interferometric measurements per se. Applicant's invention involves measuring the diffuse properties of back reflected infrared light. The diffusely scattered infrared signal propagates over much longer distances than the wave properties of light, and is used for probing deep tissue layers. Further, Applicant's invention involves exploring tissue using wavelengths in the NIR wavelength range that are heavily attenuated but still yield a useful signal. Applicant's invention takes advantage of the counterintuitive, yet physically correct, observation that the more scattering/attenuating the medium is, the more localized the detected signal is. Hence, the detected signal provides a better source for imaging.

In view of the foregoing, it is respectfully submitted that Farahi, does not teach or suggest the subject matter recited in Applicants' independent claim 1 as this reference fails at least to teach or suggest a method for collecting data for use in image reconstruction of a scattering target medium.

Independent claims 18, and 21-23 have been amended to recite similar features as claim 1, and therefore are patentably distinct over Farahi for at least the reasons discussed in connection with claim 1.

Claims 2-3, which depend directly from the independent claim 1, incorporate all

of the limitations of independent claim 1 and are therefore patentably distinct over Farahi for at least those reasons provided for claim 1.

Rejection of Claim 4 under 35 U.S.C. §103(a)

The Office Action states that Farahi discloses Applicant's claimed invention except for a plurality of detectors that are provided at a plurality of distances from the source. Further, the Office Action states that it would have been obvious to one having skill in the art at the time the invention was made to combine Farahi with the plurality of detectors since it was well known in the art that using a plurality of detectors improves the performance of the measurement by increasing the amounts of wavelength which can be detected.

Farahi has previously been discussed and does not teach or suggest the subject matter of Applicants' independent claim 1 as Farahi fails to teach or suggest a method for collecting data for use in image reconstruction of a scattering target medium.

Claim 4, which depends directly from the independent claim 1, incorporates all of the limitations of independent claim 1 and is therefore patentably distinct over Farahi for at least those reasons provided for claim 1.

Objection of Claims 5-17, 19, and 20

The Office Action objects to claims 5-17, 19, and 20 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims.

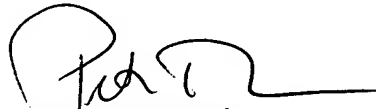
Farahi has previously been previously discussed and does not teach or suggest the subject matter of Applicants' independent claims 1 and 18 as Farahi fails to teach or suggest, at least, measuring at least one wavelength of diffusely scattered near infrared energy emerging from the target medium.

Claims 5-17, 19, and 20, which depend directly, or indirectly, from the independent claims 1 and 18, incorporate all of the limitations of the independent claims and are therefore patentably distinct over Farahi for at least those reasons provided for claim 1 and 18.

Conclusion

In view of the foregoing, applicants respectfully requests reconsideration, withdrawal of all rejections, and allowance of all pending claims in due course.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Peter I. Bernstein', with a long horizontal flourish extending to the right.

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